EXECUTIVE SUMMARY

The Bureau of Reclamation (Reclamation) and Placer County Water Agency (PCWA), on behalf of cost-sharing partners[1] (Sacramento Suburban Water District (SSWD), City of Roseville (Roseville), and City of Sacramento (Sacramento)), initiated the Sacramento River Water Reliability Study (SRWRS) in 2002 under the authorization of Public Law (PL) 106-554, Appendix D, Division B, Section 103. The goal of the SRWRS is to develop a water supply plan that is consistent with the Water Forum Agreement[2] (WFA) objectives of pursuing a Sacramento River diversion to meet water supply needs of the Placer-Sacramento region, and promoting ecosystem preservation along the lower American River. The SRWRS study area includes the region in Placer and Sacramento counties, north of the American River and east of the Sacramento River (see **Figure ES-1**).

To fully disclose the process and progress of study development, several interim documents were prepared under the SRWRS to disseminate preliminary findings to the public. An **Interim Report**, completed in June 2003, outlines identified resource problems and opportunities; goals, objectives, criteria, and constraints for study development; and a series of preliminary alternatives for scoping purposes. This **Initial Alternatives Report** documents refinements of the preliminary findings; the study process; results of initial analyses and screening of preliminary alternatives for further study; and next steps in the SRWRS. It is anticipated that the Initial Alternatives Report will provide the basis for a feasibility report, which includes a **Planning Report** (PR) and a joint **Environmental Impact Statement/ Environmental Impact Report** (EIS/EIR) for Federal and local decision-making.

BACKGROUND

The concept of a Sacramento River diversion can be found in two programmatic studies: the American River Water Resources Investigation (ARWRI) conducted by Reclamation and Sacramento Metropolitan Water Authority[3] (SMWA), and the Sacramento Area Water Forum (Water Forum) conducted by local interest parties in the Placer-Sacramento region. Each of these program-level studies was performed to develop a comprehensive plan to address a complex suite of problems that could not be resolved by an individual project. The ARWRI concluded that the region has sufficient water rights and contract entitlements to meet the projected 2030 water demand, and identified an environmentally preferred alternative for future water

[1] The Reclamation Manual, Directives and Standards CMP 05-02, requires non-Federal cost-sharing for the SRWRS. On June 26, 2002, PCWA signed a Memorandum of Agreement (MOA) with Reclamation to share a minimum of 50 percent of the study cost. PCWA then entered into separate cost-sharing agreements with its third-party cost-sharing partners: SSWD, Roseville, and Sacramento.

[2] The Sacramento Area Water Forum, created in 1993, comprises business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in the Sacramento region who joined together to meet two co-equal objectives: (1) provide a reliable and safe water supply for the region's economic health and planned development to 2030, and (2) preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River. In 2000, Water Forum members approved the WFA, which consists of seven integrated elements necessary to provide a regional solution to water shortages, environmental damage, groundwater contamination, and limited economic prosperity.

[3] SWMA, now the Regional Water Authority, was established in 1990 to represent water purveyors in Sacramento, Placer, and El Dorado counties for providing a unified voice on regional water issues.

supply needs that includes additional surface water diversions and regional conjunctive management. The WFA is a locally initiated, regional solution for developing a strategic plan that (1) provides a reliable and safe water supply for the region's economic health and planned development to 2030, and (2) preserves the fishery, wildlife, recreational, and aesthetic values of the lower American River. Both studies concluded that conjunctive use and groundwater management are supportable and sustainable alternatives for meeting future water supply needs.

WFA Water Management Actions for Environmental Purposes

For preserving the lower American River, WFA signatories are individually or collectively implementing and/or developing several water management actions stipulated in the WFA:

- Reducing future diversions from the American River in dry years to maintain flows in the lower American River. Diversion limitations would be observed by individual water purveyor according to their WFA Purveyor-Specific Agreements (PSA).

- Developing a Flow Management Standard (FMS) for the lower American River, which includes releasing supplemental flows from PCWA's Middle Fork Project[4] (MFP) storage in dry years to augment flows in the lower American River. The FMS is currently under development by Reclamation, the Water Forum, and the United States Fish and Wildlife Service (USFWS).

- Seeking diversions on the Sacramento River to reduce future diversions from the American River. The SRWRS is under development by Reclamation and the cost-sharing partners.

The first action imposes constraints on surface water supply to the Placer-Sacramento region; the other two actions require further Federal decisions for implementation.

Increasing Water Supply Demands in the Placer-Sacramento Region

According to a March 2001 projection by the Sacramento Area Council of Governments (SACOG), the population of the Placer-Sacramento region would increase by about 700,000 between 1999 and 2025, which is about a 50 percent increase from the 1999 population level. Along with Reclamation, Sacramento and PCWA are two major water rights holders in the American River basin. In addition to meeting their own water supply needs, water from the water rights of these two agencies has been contracted to local agencies to satisfy regional water supply needs.

The SRWRS cost-sharing partners have identified their long-term needs for additional water supplies to meet growing water supply demands and reliability objectives in their respective service areas. These demands are consistent with the WFA's projected demands, which reflect the General Plans of Placer and Sacramento counties and incorporated cities, and a 25.6 percent reduction in demand through implementation of best management practices (BMPs) for water conservation.

As water supply demands for the cost-sharing partners increase, WFA water management actions for the purpose of environmental preservation become major limiting factors for long-term water supply reliability.

[4] The MFP is owned and operated by PCWA as a multipurpose project designed to conserve and control waters of the Middle Fork American River, the Rubicon River, and certain tributaries for irrigation, domestic, commercial, and recreational purposes and for generating electricity. The French Meadows and Hell Hole reservoirs are two major storage facilities of the MFP.

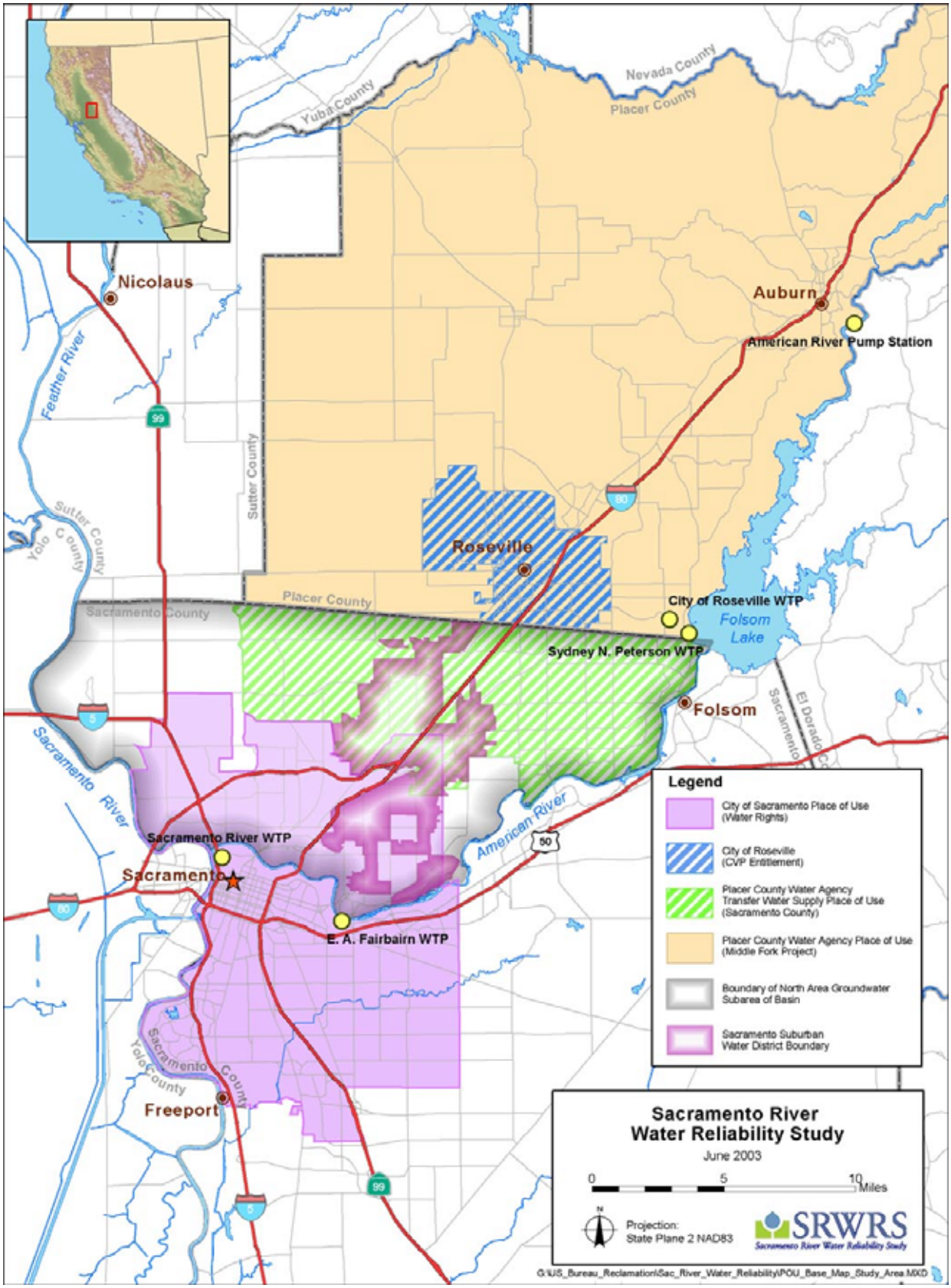

Figure ES-1. SRWRS Study Area

PROJECTED WATER SUPPLY RELIABILITY PROBLEM IN PLACER-SACRAMENTO REGION

Conjunctive use[5] is the strategy in the WFA for long-term water supply reliability. This strategy includes allowing water purveyors to divert surface water according to their surface water rights and contract entitlements in wet years, and in dry years, reduce their surface water diversions, increase use of groundwater and other supplemental water, and/or provide supplemental instream flow through storage release.

Challenges in Implementing WFA Conjunctive Management

While the programmatic concept of water management in the WFA has been accepted, individual water supply facility planning and construction is subject to project-specific evaluation and approval. Therefore, the problem of long-term water supply reliability in the Placer-Sacramento region remains because of lack of major infrastructure and the threat of groundwater contamination. With recent expansion of the Sacramento Fairbairn and Sacramento River water treatment plants (WTP), construction of the PCWA American River Pump Station (ARPS), and completion of the Freeport Regional Water Project environmental review process, the SRWRS is the only remaining major infrastructure plan to be completed for realizing the goals of surface water development and conjunctive use management envisioned by the WFA.

The WFA anticipated that all known groundwater contamination would be under control and remediated, resulting limited impacts on groundwater supply. However, the recent unexpected migration of a perchlorate plume from the Aerojet General Corporation across the American River indicates otherwise. Production wells have been shut down in Rancho Cordova, and groundwater supply could be further impacted because the perchlorate contamination is not contained and its migration pattern and extent are currently undefined. Therefore, the intensified threat of groundwater contamination in the Placer-Sacramento region has raised concerns among water purveyors who rely solely on groundwater for their water supply about loss of perceived groundwater availability in this region to support planned development and facilitate conjunctive management.

As a result, local water purveyors are seeking greater regional collaboration to improve planning and operational efficiency, diversify sources of water, and expand infrastructure interconnection and redundancy to ensure long-term water supply reliability. Purveyors with surface water rights and contract entitlements plan to use their available surface water consistent with their Water Forum commitments for to environmental preservation, and to further reduce their reliance on groundwater. Others without surface water rights and contract entitlements sought collaboration from holders of water rights and contract entitlements to diversify their portfolio of water sources without violating WFA principles. For example, purveyors in the Sacramento Place of Use (POU) are seeking opportunities for Sacramento to provide surface water to their service areas to take advantage of Sacramento's available surface water rights.

Potential Deficiency in Water Supply Reliability

Potential deficiencies in water supply reliability for the SRWRS cost-sharing partners are summarized in **Table ES-1.** The projection is based on a preliminary modeling simulation, which is subject to revision as the study progresses. Results show that WFA limitations on diversions from the American River would become a limiting factor for water supply in the Placer-Sacramento region under the assumed conditions and implementation of water management measures in each cost-sharing partner's WFA PSA.

[5] Conjunctive use is an operation that coordinates management of surface water and groundwater supplies to increase total water supplies and enhance water supply reliability.

PCWA and Roseville would have deficiencies of up to about 34,500 and 5,000 AF per year, respectively, in all Water Forum year-types.[6] For SSWD, surface water is a source of water supplemental to its groundwater resources and thus, no projected water supply deficiency would exist. However, with the threat of reduced groundwater availability due to contamination, reduced application of surface water entitlements could affect the long-term regional water supply reliability for this agency.

The quantity of potential deficiency for Sacramento is not easily defined because its WFA limitations on diversions from the American River are flow-based. The potential deficiency would be affected by hydrologic conditions in the American River basin and the operation of Folsom Dam by Reclamation. The Below Hodge Conditions[7] may become a controlling factor even in wet and average years. A preliminary assessment indicates that the Hodge Condition could occur about 50 percent of wet and average years, causing the depiction of potential water supply deficiency to be inaccurate if summarized by Water Forum year-type; thus, an average of all years is used. Preliminary monthly modeling results suggest an average deficiency of 17,000 AF per year in surface water supply; however, this may have been underestimated because the deficiency in facility capacity could be a greater control factor for Sacramento's real-time operation for water supply.

Table ES-2 compares maximum-day (max-day) demand[8] and total available (or allowable) surface water diversion and treatment capacity at Sacramento's existing WTPs. The significant deficiency in facility capacity would result in increased reliance on groundwater use and limited ability to assist neighboring purveyors who rely solely or heavily on groundwater; both would negatively affect conjunctive management and thus, long-term water supply reliability in the Placer-Sacramento region.

PLAN FORMULATION FOR IDENTIFIED WATER SUPPLY RELIABILITY PROBLEM

The SRWRS will be developed consistent with the programmatic ARWRI and WFA, and will conduct a project-specific analysis to evaluate the feasibility of a Sacramento River diversion that is consistent with WFA objectives.

Planning Objectives, Constraints, and Criteria

To address the identified water supply reliability problem and satisfy the study authorizing legislation, the following planning objectives for the SRWRS were identified:

- Provide additional water supply to PCWA to meet water demands resulting from planned urban growth

[6] The WFA defines year types for the American River Basin based on March through November unimpaired inflow to Folsom Lake, as follows: wet (above 1,600,000 AF), normal (between 1,600,000 and 950,000 AF), drier (between 950,000 and 400,000 AF), and driest years (below 400,000 AF).

[7] A January 2, 1990, judgment of the Superior Court for the County of Alameda (*Environmental Defense Fund, Inc. v. East Bay Municipal Utility District*, Case No. 425955), known as the Hodge Decision, directed the East Bay Municipal Utility District (EBMUD) to divert from the lower American River based on its Central Valley Project (CVP) contractual entitlement only when specified flows would remain in the river, known as Hodge Flows. The Hodge Flows are 2,000 cubic feet per second (cfs) from October 15 through the end of February, 3,000 cfs from March 1 through June 30, and 1,750 cfs from July 1 through October 14. "Below Hodge Conditions" refers to conditions when bypassing flow at Sacramento's Fairbairn WTP is less than Hodge Flows. Although the Hodge Decision applies only to parties to that lawsuit, WFA signatories (such as Sacramento) volunteer to observe the flow requirements when reasonable and feasible alternatives exist to recover from the resulting loss of water supply reliability.

[8] The estimated maximum daily use in a year, which is commonly presented in million gallons per day (mgd) and used as the design capacity for water supply facilities.

Table ES-1. Potential Future Water Supply Deficiency for PCWA, SSWD, and Roseville

Water Forum Year-Type[1]	Water Purveyor	Type of Use	Demand (AF per year)	Supply (AF per year)			Unmet Demand (AF per year)
				Surface Water[2]	Groundwater	Others[3]	
Wet Years	PCWA	Ag	140,000	85,000	51,000	4,000	0
		M&I	85,400[2]	50,900	0	0	34,500[4]
	SSWD	M&I	92,227	55,064	37,163	0	0
	Roseville	M&I	64,020	58,900	0	2,773	2,347
Driest Years	PCWA	Ag	140,000	57,892	66,000	4,000	12,108[5]
		M&I	85,400[2]	50,900	0	0	34,500[4]
	SSWD	M&I	92,227	3,500	88,727	0	0
	Roseville	M&I	64,020	39,800	7,300	11,993	4,927

[1] Projection for wet and driest years only to bracket the water supply conditions because the corresponding limitations on diversions from the American River for these purveyors are Water Forum year-type dependent.
[2] Surface water supply is limited by WFA when diverted from the American River. Surface water allocation was based on monthly results from a preliminary CALSIM modeling study, which is subject to further refinements as the study progresses.
[3] For PCWA, reclaimed water; for Roseville, reclaimed water and extra ordinary conservation.
[4] Demand and unmet amounts are based on a slow-growth projection. A future realized growth greater than the assumed slow-growth projection would result in additional unmet demand.
[5] Agricultural deficiency in areas without groundwater accessibility.

Table ES-2. Projected Future Water Supply Deficiency for Sacramento

(a) in Annual Average Volume

Water Forum Year Type	Water Purveyor	Type of Use	Demand (AF per year)	Supply (AF per year)			Unmet Demand (AF per year)
				Surface Water[1]	Groundwater	Others[2]	
All Years[3]	Sacramento	M&I	239,804	222,804[3]	7,136	0	17,000

[1] Surface water supply is limited by WFA when diverted from the American River. Surface water allocation was based on monthly results from a preliminary CALSIM modeling study, which is subject to further refinements as the study progresses.
[2] For Sacramento, no currently approved use exists for other sources of water.
[3] Projection represents the average of all year-types because the corresponding limitations on diversions from the American River for Sacramento are flow-dependent. The Hodge conditions trigger the diversion limitations from the American River, and could occur in all year-types.

(b) in Max-Day Capacity

Water Forum Year-Type	Hydrologic Condition	Type of Use	Surface Water Demand (AF per year)	Capacity Needs (mgd)			Available Max-Day Supply[2] (mgd)	Unmet Max-Day Demand (mgd)
				Max-Day Demand	Wheeling for Sacramento County[1]	Total		
Driest Years	All	M&I	232,668	378	23	401	260	141
All Other Years	Above Hodge[3]	M&I	232,668	378	23	401	360	41
	Below Hodge[4]	M&I	232,668	378	23	401	260	141

[1] Wheeling for Zone 40 and Zone 50.
[2] The installed capacity of the Sacramento River WTP is 160 mgd, and that of the Fairbairn WTP is 200 mgd. The diversion rate at the Fairbairn WTP is subject to limitations in the WFA.
[3] Above Hodge: The American River flow is above the flow thresholds set forth by the Hodge Decision.
[4] Below Hodge: The American River flow is below the flow thresholds set forth by the Hodge Decision.

- Provide additional water supply to SSWD to enhance the Groundwater Stabilization Project
- Provide additional water supply to Roseville to meet water demands resulting from planned urban growth and to facilitate a local conjunctive use program
- Provide additional water supply capacity for Sacramento to ensure water supply reliability and to provide retail and wholesale services within Sacramento's POU, and wheeling services to neighboring water purveyors to meet water demands and reduce groundwater reliance
- Maximize long-term water supply reliability in the Placer-Sacramento region through increased system interconnectivity, and source redundancy through conjunctive use of groundwater and the cost-sharing partners' existing surface water rights and contract entitlements

These objectives will be used for formulating alternatives and when considering the planning constraints and criteria discussed below.

Development of the SRWRS will be consistent with the following constraints and criteria:

- Satisfying requirements stipulated in PL 106-554 to complete a feasibility study for a Sacramento River diversion that is consistent with the WFA and includes the following components: (1) development of a range of reasonable options, (2) an environmental evaluation, and (3) consultation with Federal and State resource management agencies regarding potential impacts and mitigation measures. Furthermore, Congress requires the SRWRS to be developed in coordination with the California Federal Bay-Delta Program (CALFED).
- Observing existing applicable laws, regulations, water rights, contracts and legal agreements, and Federal planning guidelines, including, but not limited to, Federal planning guidelines such as the Federal Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), California water laws, and obligations of the cost-sharing partners in their charters and as defined in California laws.
- Minimizing overall impacts on the environment to the extent feasible, being cost-effective, and complementing and enhancing the overall reliability of the Placer-Sacramento region's water supply system through increased interconnectivity and source redundancy.

Table ES-3 summarizes requests for additional surface water diversion and treatment capacity to balance projected 2030 demand and supply and enhance water supply reliability.

Other Regional Opportunities the SRWRS May Contribute

The SRWRS will formulate solutions for the identified problems; however, these solutions could contribute to other regional opportunities, resulting in potential ancillary benefits.

Enhancement of CVP Operational Flexibility

The opportunity to enhance CVP operational flexibility could occur through implementation of WFA elements, which would result in reducing future diversions from the lower American River and supplementing dry-year inflows to Folsom Lake with upstream storage releases. The SRWRS could contribute to realizing these management actions, as well as to the highly related opportunity for promoting ecosystem preservation in the lower American River.

As an integral part of the CVP, Folsom Dam is operated for contract deliveries, flood management, instream flow needs in the lower American River, and water quality needs in the Delta. The operation of Folsom Dam is especially critical in meeting Delta water quality objectives in Decision 1641 (D-1641) issued by the State

Table ES-3. Water Delivery Quantities Considered in the SRWRS, by Cost-Sharing Partner

Water Purveyor	Maximum Additional Annual Water Deliveries (AF)	Source	Type of Use	Additional Treatment Capacities (mgd)	Purpose of Additional Treatment Capacities
PCWA	35,000	CVP	M&I	65	Max-day demand
SSWD	29,000[1]	MFP	M&I	15	Reliability and redundancy
Roseville	7,100[2]	MFP	M&I	10	Max-day demand
Sacramento	17,000[3]	Water rights, water wheeling requests	M&I	145	Max-day demand
Total	88,100			235	

[1] For Water Forum average, drier, and driest years only; the WFA allows SSWD to exercise this entitlement in Water Forum wet years using diversions from the American River.
[2] Roseville would only consider additional diversions from a river other than the American River.
[3] The WFA does not establish a volumetric limitation for Sacramento's total diversion; the estimated additional water supply to meet its projected demand is about 17,000 AF per year, based on the difference between the projected demand and the simulated average diversion for Sacramento that could be realized using then-existing diversion facilities on the American and Sacramento rivers. However, Sacramento could divert up to 81,800 AF per year under its water rights on the Sacramento River at a new diversion by reducing the diversion under its Sacramento River water rights at its existing Sacramento River WTP downstream of the confluence with the American River.

Water Resources Control Board (SWRCB) in 2000. D-1641 requires that the CVP and State Water Project (SWP) meet water quality flow objectives in the Sacramento-San Joaquin Delta (Delta), except for salinity objectives in the south Delta, until a settlement is reached with other Sacramento Valley water right holders. Since Folsom Reservoir is the closest water source to the Delta, releases from Folsom Dam often are used first to maintain Delta water quality standards when Delta conditions deteriorate. A release is reduced once standards are met or increased flows from other reservoirs arrive in the Delta.

This existing operational flexibility provided by Folsom Reservoir for D-1641 compliance would be further affected by increasing needs for water supply, flood control, and fishery management in the American River. The increased demand in the American River basin (especially in the upper basin) would reduce available water to the CVP for water supply purpose and flow management in the lower American River and in the Delta. The recently issued Biological Opinion (BO) by the National Marine Fisheries Service of National Oceanic and Atmospheric Administration (NOAA Fisheries) for the CVP Long-Term CVP Operations Criteria and Plan (OCAP) indicates that the ablity to fill Folsom Reservoir in May would be reduced from 50 percent to 40 percent between conditions today and conditions in the future as water demand in the American River basin increases from a total of 256 thousand acre-feet (TAF) at the 2001 level of development (LOD) to 688 TAF at a 2020 LOD. Since 1996, Reclamation implemented a dynamic allocation of flood control space from 400,000 to 670,000 AF; this action also may result in less storage in some hydrologic conditions such as those in 1997. Increasing needs for additional instream flow requirements and other fishery management goals in the American River also would compete for limited water and storage behind Folsom Dam, as explained in the following opportunity for promoting ecosystem preservation in the lower American River.

Promotion of Ecosystem Preservation in the Lower American River

The opportunity to promote ecosystem preservation in the lower American River could come from implementing projects contributing to the water supply reliability objective of the WFA and thus, facilitate progress in the other Water Forum co-equal objective of preserving the lower American River. This opportunity may accompany the opportunity for enhancing CVP operational efficiency, as described above.

Lower American River instream flow requirements were originally defined in SWRCB D-893. The SWRCB then increased the D-893 minimum release schedule through D-1400. This decision was applied to the water rights permit for Auburn Dam and does not apply to operation of Folsom and Nimbus dams. However, Reclamation voluntarily operates Folsom and Nimbus dams to meet a modified D-1400 for minimum fishery flows, and more recently has striven to meet recommended Anadromous Fish Restoration Program (AFRP) flows for the lower American River under the Central Valley Project Improvement Act (CVPIA).

Although Reclamation implemented AFRP flow objectives in the lower American River, temperature control problems still exist due to the relatively small coldwater pool available in Folsom Reservoir. To protect Central Valley spring-run Chinook salmon and steelhead, the 2002 BO on interim operations of the CVP and State Waer Project (SWP) sepecifies ramping criteria for releases from Nimbus Dam. The BO also requires Reclamation, to the extent possible, to control water temperatures in the lower American River between Nimbus Dam and the Watt Avenue Bridge (River Mile 9.4) from June 1 through November 30 to maintain a daily average temperature of less than or equal to 65 degrees Fahrenheit (ºF) to protect juvenile steelhead from thermal stress and warmwater predator species. This BO resulted in a significant conflict for Folsom Dam operations due to the different life stages of these two targeted species at any given time. Also, the amount of cold water in Folsom Lake that could be released to meet temperature requirements for spawning and rearing of both fall-run Chinook salmon and steelhead is limited.

Currently, Reclamation receives recommendations from the interagency American River Workgroup (AROG) on seasonal fluctuations and ramping of stream flows in the lower American River. With input from AROG, Reclamation continues to adaptively manage lower American River temperatures through a combination of flow releases and intake shutter operations. The goal of this adaptive management is to provide suitable temperatures during the summer months for the Nimbus Fish Hatchery and rearing juvenile steelhead, while minimizing the loss of the coldwater pool remaining for spawning fall-run Chinook salmon.

The 2004 OCAP BO by NOAA Fisheries indicates that the impacts of CVP and SWP operation on the American River would increase with the predicted increase in water demand. Recognizing that Reclamation is adaptively managing river temperature in coordination with NOAA Fisheries staff and AROG, the OCAP BO indicates additional protection of endangered and threatened species through coordination with the WFA for implementing associated water management actions to reduce future diversions from the American River and to provide supplemental flow with releases from upstream storage.

Coordination with ABFSHIP for Potential Regional Benefits

The American Basin Fish Screen and Habitat Improvement Project (ABFSHIP), supported by funding from the Central Valley Project Improvement Act (CVPIA) Anadromous Fish Screen Program (AFSP) and CALFED Environmental Restoration Program (ERP), is to consolidate five existing diversions of Natomas Mutual Water Company (NMWC) and one other diversion of local riparian water right holders on the Sacramento River into one or two new diversion facilities with fish screens. The WFA recommends the consolidation and screening of these diversions to benefit the environment and Sacramento River fisheries.

NMWC completed a Feasibility Study Technical Report for ABFSHIP in 2000. Currently, NMWC, Reclamation (NEPA lead agency) and CDFG (California Environmental Quality Act (CEQA) lead agency) are preparing an EIS/EIR for ABFSHIP. As a project supported by CALFED funding, ABFSHIP is currently undergoing an environmental review process and is developing an Action Specific Implementation Plan (ASIP) for its proposed actions. All three action alternatives under consideration (Sankey/Elkhorn

Diversions, Sankey Diversion, and Prichard Diversion) include a total screened diversion capacity of 644[9] cfs, removal of a dam at the mouth of the Natomas Cross Canal (NCC), improvements to NMWC's canal distribution system, and corresponding revised operation for water delivery. The Sankey/Elkhorn Diversions alternative is the proposed action under the ASIP process. The final decision(s) on ABFSHIP will be made after lead agencies completing the environmental compliance process in late 2005.

The development of ABFSHIP is independent to SRWRS development. The opportunity for coordinating efforts of ABFSHIP and the SRWRS stems from potential reduction in overall environmental impacts that may be associated with having two major diversions in the less-than-2-mile reach of the Sacramento River, and increase in regional water management flexibility that may be realized through a collaborative approach in the urbanizing Natomas Basin. Local water purveyors (including NMWC and SRWRS cost-sharing partners) have been discussing issues of consolidating diversion needs for SRWRS cost-sharing partners and for NMWC's planned Elkhorn Diversion under the ABFSHIP Sankey/Elkhorn Diversions alternative. As suggested in NMWC's 2000 ABFSHIP Feasibility Study Technical Report, the Sankey/Elkhorn Diversions alternative is the most feasible alternative and allows more flexibility in water management to fulfill NMWC's commitments for providing landscape irrigation water to the Sacramento International Airport, and facilitate required service to M&I purveyors in the Natomas Basin if the projected land use change from agriculture to urban occurs.

Implementation of the SRWRS is anticipated by local agencies, but implementation of ABFSHIP will rely on Federal and State funding from the AFSP and CALFED program. Despite progress in the environmental process, potential delay in full installment of Federal funding may result in staging or delay in construction of one or both ABFSHIP diversions, creating the opportunity of coordination between ABFSHIP and the SRWRS to maximize the potential regional benefits without impacting the schedule of improvements for fishery protection. While a preliminary protocol was developed for coordinating these two projects through a multi-agency coordination meeting,[10] success in realizing this opportunity depends on the progress of the two projects and agreements among local water agencies.

Development of Preliminary Alternatives

Measures (partial solutions) ranging from surface water storage, groundwater, additional conservation and reclaimed water use, and surface water diversions were considered in the SRWRS for the identified water supply reliability needs. These measures were screened for their effectiveness and efficiency in addressing the identified planning objectives.

Five preliminary alternatives were developed by combining retained measures: (1) Elkhorn/Elverta Diversion Alternative, (2) Sankey Diversion Alternative, (3) Feather River Diversion Alternative, (4) American River Pump Station (ARPS) Alternative, and (5) Folsom Dam Alternative. Each alternative identified for the SRWRS includes a plan for operating a package of water supply infrastructure components to meet water supply needs of the cost-sharing partners, and satisfy the identified planning constraints and criteria. Infrastructure components include new or expanded diversion(s) from the Sacramento, Feather, or American rivers, and new or expanded water treatment and major transmission facilities.

[9] The Sankey/Elkhorn Diversions alternative would include a 434-cfs diversion near Sankey Road and a 210-cfs diversion near existing NMWC's Elkhorn diversion; the Sankey Diversion alternative would have a 644-cfs diversion near Sankey Road; the Prichard Diversion alternative would have a 644-cfs diversion near Prichard Lake.

[10] Reclamation held this multi-agency coordination meeting on January 14, 2004. Participants include Reclamation, FWS, NOAA Fisheries, CALFED, CDFG, NMWC, and SRWRS cost-sharing partners. See Chapter 8 for detail.

Scoping Process

Preliminary alternatives were included in the Notice of Intent (NOI) and Notice of Preparation (NOP) issued for the SRWRS scoping process in July and August 2003, respectively. The alternatives were presented in briefings from July through October 2003, and scoping meetings in September 2003 were held to solicit public input on preliminary alternatives and study development. This public input will be taken into consideration as the SRWRS continues.

Alternatives for Further Evaluation

For further focused development of the SRWRS, a screening of these preliminary alternatives was performed to modify, combine, or remove alternatives based on initial analyses of institutional requirements, engineering challenges and cost, magnitudes of environmental effect, and public input received during the scoping process. The purpose of the screening was not to select a superior plan, but to remove less desirable plan(s).

Two preliminary action alternatives were retained for further study: Elkhorn/Elverta Diversion Alternative and ARPS Alternative. These two preliminary action alternatives were further refined into four alternatives to incorporate considerations for coordination with ABFSHIP on its Sankey/Elkhorn Diversions Alternative. These four retained alternatives are described below (the corresponding facility plans are summarized in **Table ES-4**):

- **SRWRS Elverta Diversion Alternative**. This alternative consists of the Elverta Diversion and associated facility plan to accommodate only the needs of the SRWRS cost-sharing partners. The infrastructure plan includes a raw water intake and pump station located on the Sacramento River with a total discharge capacity of 235 mgd, or 365 cfs, a new joint WTP of the same capacity, raw water pipelines, and treated water pipelines to the connecting point(s) of each cost-sharing partner's existing water distribution system. It is anticipated that the intake and WTP would be owned and operated by Sacramento. Under this alternative, it is assumed that NMWC would construct and operate its Elkhorn Diversion of 136 mgd (210 cfs), planned for ABFSHIP independent of the SRWRS, or continue to divert from its existing diversion.

- **Joint SRWRS-ABFSHIP Elverta Diversion Alternative** (see **Figure ES-2**)**.** This alternative is the local proposed alternative, which consists of a consolidated diversion on the Sacramento River and associated facility plan to accommodate the needs of the SRWRS cost-sharing partners, and the needs of NMWC from its planned Elkhorn Diversion under ABFSHIP. In addition to facilities of the SRWRS Elverta Diversion Alternative, this alternative includes an additional diversion capacity of 165 mgd (210 cfs) and landside improvements for accommodating NMWC's needs from the planned Elkhorn Diversion, if the ABFSHIP lead agencies recommend the proposed Sankey/Elkhorn Diversions alternative in their final decision(s). Therefore, the Elkhorn Diversion planned in ABFSHIP would not be constructed.

  No implication about NMWC's existing water rights and contract entitlements was made by proposing a consolidated diversion for the Joint SRWRS-ABFSHIP Elverta Diversion Alternative, and this alternative is subject to agreement among local water purveyors. ABFSHIP would be maintained in a separate study pursued by NMWC to consolidate its existing five agricultural diversions into two for fishery protection and operational efficiency. The SRWRS would consider only facility components and their associated environmental impacts that are necessary to move the planned Elkhorn Diversion to the Elverta location for potential regional benefits.

- **ARPS-Elverta Diversion Alternative** — Under this alternative, PCWA would expand its ARPS near Auburn from a capacity of 100 cfs to 200 cfs; expand its Foothill Phase II WTP with an increment of like capacity; and expand its associated transmission facilities. SSWD would divert from SJWD's existing

diversion facilities at Folsom Dam using shoulder capacity. Roseville would increase use of groundwater to satisfy its needs under this alternative, but would have no additional surface water diversions. Sacramento would divert separately from the Sacramento River at the Elverta site through a new intake of 145 mgd (235 cfs), and construct its own treatment and transmission facilities to serve its needs. Under this alternative, NMWC would construct and operate its planned Elkhorn Diversion of 136 mgd (210 cfs) independent of the SRWRS, or continue to divert from its existing diversion.

- **ARPS-Joint Sacramento-ABFSHIP Elverta Diversion Alternative** — This alternative would have the same facilities as for the ARPS-Elverta Diversion Alternative, an additional diversion capacity of 165 mgd (210 cfs), and landside improvements for accommodating NMWC's needs from the planned Elkhorn Diversion, if the ABFSHIP lead agencies recommend the proposed Sankey/Elkhorn Diversions alternative in their final decision(s).

  Similar to the Joint SRWRS-ABFSHIP Elverta Diversion Alternative, no implication about NMWC's existing water rights and contract entitlements was made by proposing a consolidated diversion for Sacramento and ABFSHIP, and this alternative is subject to agreement among local water purveyors. ABFSHIP would be maintained in a separate study pursued by NMWC to consolidate its existing five agricultural diversions into two for fishery protection and operational efficiency. The SRWRS would consider only facility components and their associated environmental impacts that are necessary to move the planned Elkhorn Diversion to the Elverta location for potential regional benefits.

Note that the development of ABFSHIP is independent to SRWRS development. The final Federal decision(s) on ABFSHIP has not been made. The above description of retained alternatives with a consolidated diversion (Joint SRWRS-ABFSHIP Elverta Diversion Alternative and ARPS-Joint Sacramento-AFSHIP Elverta Diversion Alternative) assumes the condition of the ABFSHIP-proposed action under its ASIP process, which would allow the opportunity for a consolidated diversion. If the final decision(s) on ABFSHIP indicates otherwise, these alternatives would be reduced to their corresponding counterpart without the consolidation feature (i.e., SRWRS Elverta Diversion Alternative and ARPS-Elverta Diversion Alternative, respectively).

POTENTIAL FEDERAL ROLES IN PROJECT IMPLEMENTATION

The current study findings suggest that local water purveyors are potential beneficiaries of a Sacramento River diversion, and Reclamation's potential interest for a Sacramento River diversion is limited because this region has sufficient water rights and contract entitlements to meet projected future demand. However, a Sacramento River diversion could promote other Federal interests that could be realized in other ongoing programs and projects, as identified earlier in the Executive Summary: (1) enhancement of CVP operational flexibility, (2) preservation of the lower American River, and (3) coordination with ABFSHIP for potential regional benefits.

Considering limited Federal interest in water supply plans evaluated in the SRWRS, the cost-sharing partners have requested Reclamation to consider the following Federal administrative actions for implementing a Sacramento River diversion:

- Including an additional point of delivery at the selected Sacramento River location in PCWA's CVP contract for delivery of up to 35,000 AF per year

- Entering into an exchange agreement with PCWA to receive water released from the MFP to Folsom Lake, and to provide an equal amount of water for SSWD's and Roseville's diversions at the selected Sacramento River location

Note that constructing a Sacramento River diversion for Sacramento to divert its senior water rights on the Sacramento River does not require any Reclamation approval or actions.

The aforementioned Federal actions are within the delegated authority of a regional director and require no subsequent or additional authorization from Congress. However, if deemed beneficial, implementation of the joint SRWRS-ABFSHIP Elverta Diversion Alternative would require additional Federal decisions on consolidating diversion capacity of a Federally supported project with a local diversion project. This particular action may require additional congressional authorization. Therefore, it is recommended that Reclamation continue engaging in study development and considering potential Federal roles in project implementation of a joint SRWRS-ABFSHIP Elverta Diversion.

Table E-4. Summary of Facility Plans for Alternatives Retained for Further Study

Alternative	Purveyor	SRWRS Facility Plan for Diversions Under Consideration[1]						Corresponding ABFSHIP Elkhorn Diversion Capacity (listed for reference only)	
		Diversion			Treatment Capacity (mgd)	Transmission Pipelines	Canal Improvement		
		Location	Capacity Increment (cfs)	Capacity Increment (mgd)				(cfs)	(mgd)
SRWRS Elverta Diversion Alternative	PCWA	Elverta	101	65	65	Connecting to distribution systems	Relocation near diversion		
	SSWD	Elverta	23	15[2]	15[2]				
	Roseville	Elverta	16	10	10				
	Sacramento	Elverta	225	145	145				
	NMWC	-	-	-	-	-	-	210	136
	Subtotal for Elverta		**365**	**235**	**235**				
Joint SRWRS-ABFSHIP Elverta Diversion Alternative	PCWA	Elverta	101	65	65	Connecting to distribution systems	Relocation near diversion		
	SSWD	Elverta	23	15[2]	15[2]				
	Roseville	Elverta	16	10	10				
	Sacramento	Elverta	225	145	145				
	NMWC	Elverta	210	136	-	-	As needed for ensuring operation	-	-
	Subtotal for Elverta		**575**	**371**	**235**				
ARPS-Elverta Diversion Alternative	PCWA	ARPS	101	65	65	Connecting to distribution systems	-		
	SSWD	Folsom Dam	23	-[3]	-[3]				
	Roseville	------ *Use existing groundwater capacity* -----							
	Sacramento	Elverta	225	145	145		Relocation near diversion		
	NMWC	-	-	-	-	-	-	210	136
	Subtotal for Elverta		**225**	**145**	**145**				
ARPS-Joint Sacramento-ABFSHIP Elverta Diversion Alternative	PCWA	ARPS	101	65	65	Connecting to distribution systems	-		
	SSWD	Folsom Dam	23	-[3]	-[3]				
	Roseville	----- *Use existing groundwater capacity* -----							
	Sacramento	Elverta	225	145	145		Relocation near diversion		
	NMWC	Elverta	210	136	-		As needed for ensuring operation	-	-
	Subtotal for Elverta		**435**	**281**	**155**				

[1] All SRWRS facility plans would provide the following water rights and contract entitlements:

- PCWA's 35,000 AF per year of CVP contract entitlement
- SSWD's 29,000 AF per year of PCWA's MFP contract entitlement in Water Forum non-wet years
- Roseville's diversions of up to 7,100 AF per year of PCWA's MFP contract entitlement
- Sacramento's diversions from 245,000 AF per year American River water rights and 81,800 AF per year Sacramento River water rights beyond the capacity of the Sacramento River and Fairbairn WTPs, while observing WFA limitations on diversion at the Fairbairn WTP.

[2] SSWD also would use additional shoulder capacity for delivery of up to 29,000 AF per year.

[3] SSWD also would use existing shoulder capacity at SJWD's Peterson WTP for delivery of up to 29,000 AF per year.

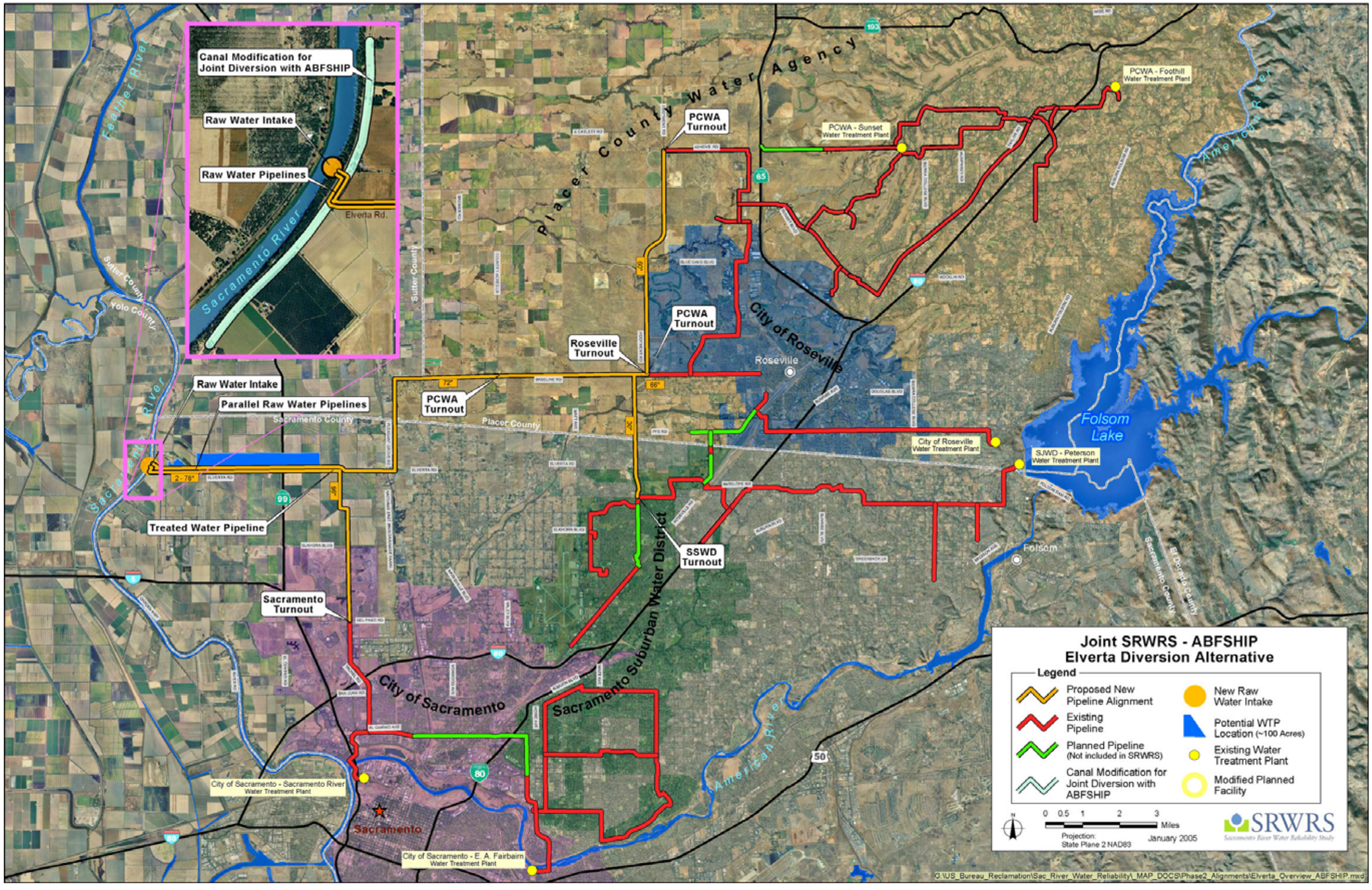

Figure ES-2. Joint SRWRS-ABFSHIP Elverta Diversion Alternative

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NEXT STEPS

SRWRS development includes four phases: (1) Initial Investigation Phase, (2) Initial Plans Phase, (3) Alternative Plans Phase, and (4) Recommended Plan Phase. This **Initial Alternatives Report** summarizes findings of the first two phases; the SRWRS is currently in the Alternative Plan Phase of study development. Tasks to be performed during this phase include the following:

- Evaluating alternatives for accomplishments in meeting the planning objectives
- Refining engineering design for each retained alternative
- Assessing environmental impacts and economic considerations for each retained alternative
- Preparing Biological Assessments (BA) and a draft PR/EIS/EIR
- Continuing public outreach through newsletters, briefings, workshops, and other activities
- Selecting a preferred plan and finalized PR/EIS/EIR with recommended actions

The four phases of SRWRS development are roughly divided into two study phases for administrative purposes. Phase 1 covers the Initial Investigation Phase and Initial Plans Phase, focusing on alternative development, preliminary screening, and public involvement and outreach strategies. Phase 2 covers the Alternative Plan Phase and Recommended Plan Phase, emphasizing preparation of the feasibility report and environmental documentation. A tentative study schedule is shown in **Figure ES-3**. SRWRS completion is currently expected to span more than 3 years with a tentative completion date in 2006. The schedule is subject to revision to reflect progress in study development and agency consultation.

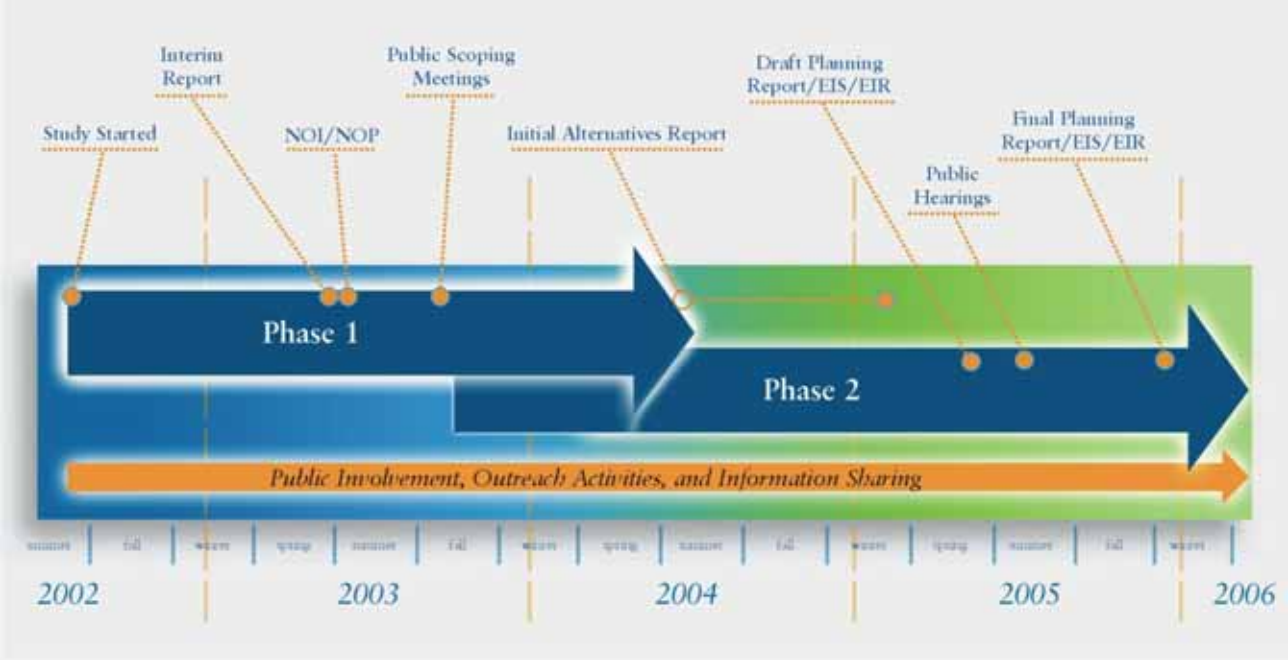

Figure ES-3. Tentative Schedule for SRWRS Development

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